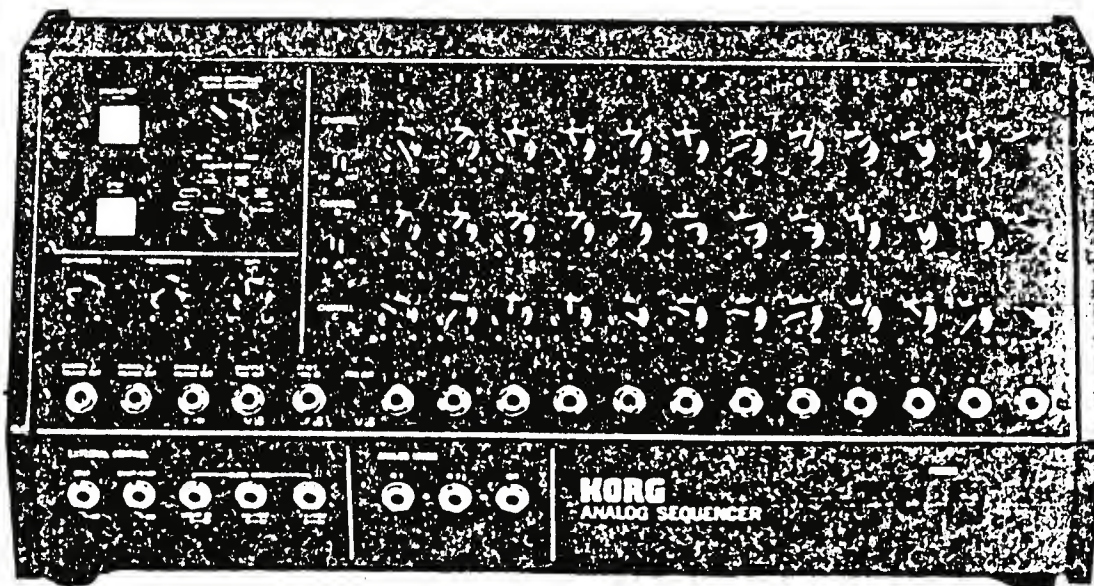


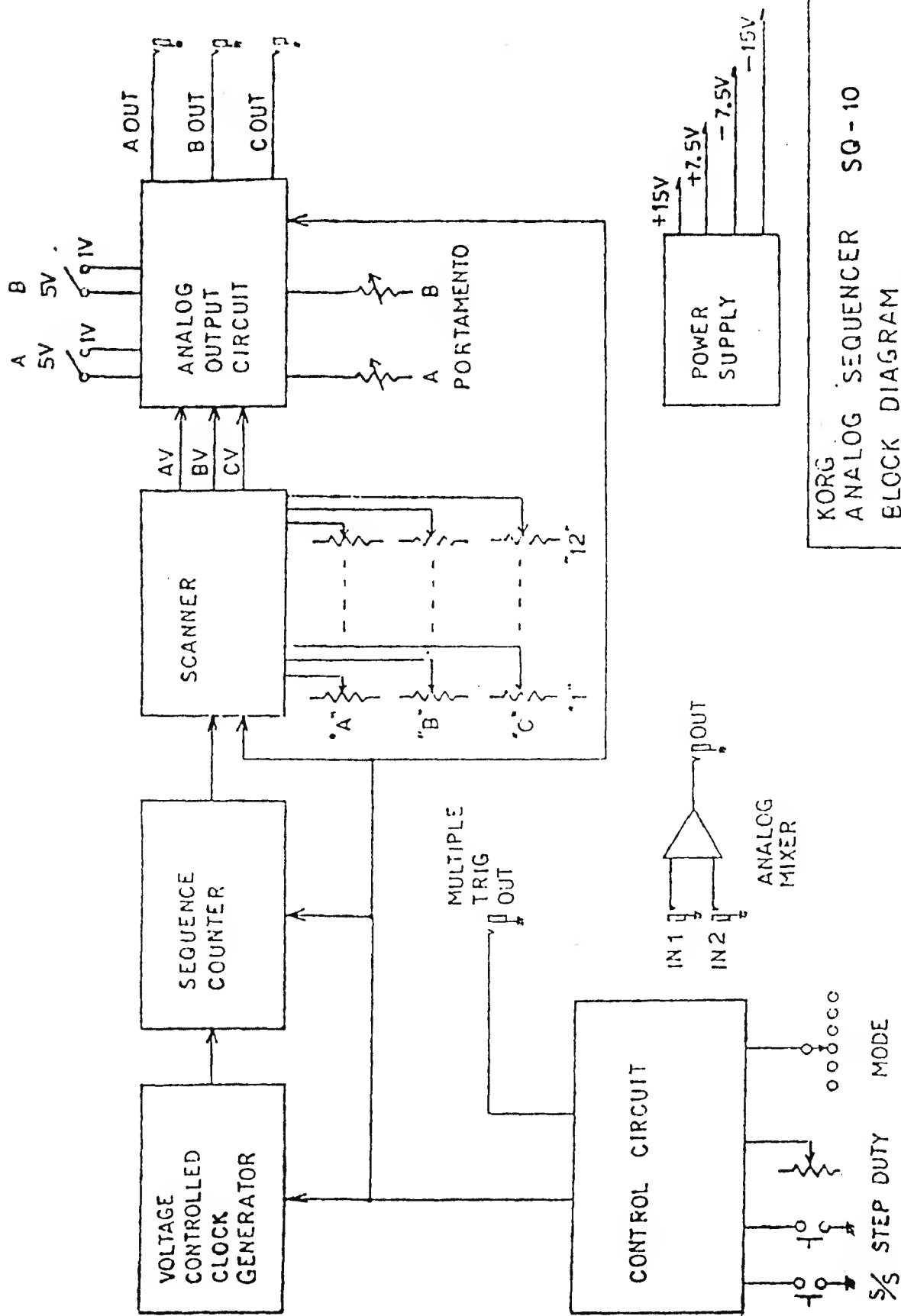
(Bad copy)

# SQ-10

## SERVICE MANUAL



KEIO ELECTRONIC LAB., CORP.  
TOKYO, JAPAN



KORG  
ANALOG SEQUENCER SQ-10  
BLOCK DIAGRAM

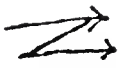
## Power Check &amp; Adjust

1. +15V: Should be 14.4V~15.6V.
2. -15V: Should be -14.4V~-15.6V.
3. +7.5V: Adjust VR46 to 7.50V.
4. -7.5V: Adjust VR47 to -7.50V.

Function Test -- Standard -- Connect MS-10 (fig 1)

Set MS-10 and SQ-10 controls (fig 2)  
(fig-3)

No.	Mode Rotary switch	Check
2.		Clock LED flashes on and off.
3.		'12' LED turns on first. Then 1 and 2 each time step button is pressed, so the sequence goes 12, 1, 2. A and B LED's do not turn on in this mode.
4.		LED's 1 through 12 should be off at first. When S/S switch is pressed, sequence goes 1, 2 .... 12, 1, 2 .... When S/S switch is pressed again, LED's go out. A and B do not light.
5.		LED's 1 through 12 should be off at first. When you turn on the S/S switch, the sequence should automatically advance 1, 2, ... 12 ... and then stop after one time, If you press the S/S switch between 1 and 12, the sequence should stop. A and B do not turn on.
6.		B and 12 are on at first. A and 1 turn on when you first press the Step switch. Press it again for 2...12; again for B 1...12; and again for A 1...
7.		A and B and 1 through 12 should all be off at the beginning. When you press the S/S switch, the sequence should go A 1...12, B 1...12, A 1... automatically. Press the S/S switch again to stop.

8.  At the beginning A and B and 1 through 12 should all be off. Press the S/S switch and there should be a single cycle of A 1...12 and B 1...12. Then it should stop. It should also stop if you press the S/S switch while the LED's are changing.

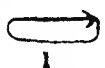
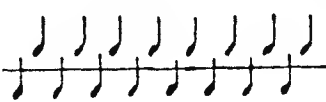
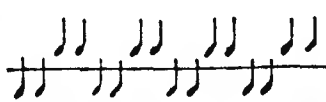
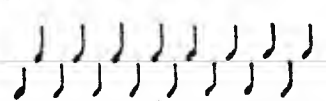

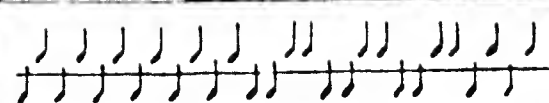
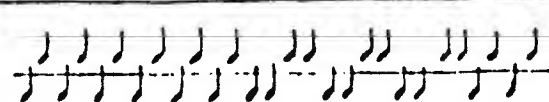
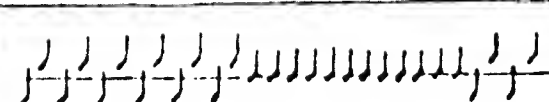
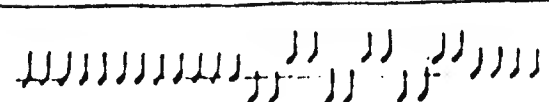
### Function Test (2)

○ means the phone plug connected to the MS-10 CV IN.

⊗ means the phone plug connected to the opposite side (open).

sa-10 Check 2/4

### FUNCTION TEST (2)

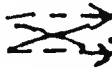

NO	MODE Rotary SW	(OUTPUT)			musical interval
		A	B	C	
9		○			
10			○		
11				○	
12		○			
13			○		
14		○	⊗		
15		⊗	○		

# OUTPUT CHECK





NO.	TEST STEP VR 3.1	MODE	5V - 1V SW		Digital Volt Mtr			Measure STEP	Limit
			A	B	A	B	C		
28	"1" A B C		5V	↑	○			"1"	+ 4.90 ~ + 5.10 V
29			1V	5V	○			"1"	+ 0.95 ~ + 1.05 V
30			↑	↓		○		"1"	+ 4.90 ~ + 5.10 V
31				1V		○		"1"	+ 0.95 ~ + 1.05 V
32			↑	↑			○	"1"	+ 4.90 ~ + 5.10 V
33				↑	○			"A" "1"	+ 4.85 ~ + 5.15 V
34			5V	5V	○			"B" "1"	+ 4.85 ~ + 5.15 V
35				↑	○			"A" "1"	- 4.85 ~ - 5.15 V
36				↑	○			"B" "1"	- 4.85 ~ - 5.15 V
37				↑	○			"1"	- 4.90 ~ - 5.10 V
38	"1" A B C			↓		○		"1"	- 4.90 ~ - 5.10 V
39			↓	↓			○	"1"	- 0.10 ~ + 0.10 V

○ Digital voltmeter to measure the Phone jack

### Function Test (3)

No.	Item	Check
16	Portamento-A	Portamento effect should only show up in the channel A output when you turn up this knob.
17.	Portamento-B	Portamento should only show up in the B channel output.
18.	Duty	Should get shorter when knob is turned counter-clockwise. Should get longer when turned clockwise.
19.	Reset, Trig Out (1~11)	Connect RESET <sup>TRIG</sup> IN jack to each of TRIG OUT jacks 1 through 11 in turn, and see that the sequence returns to 1 after reaching the proper step. Disconnect after check.
20.	Trig Out (12)	With TRIG OUT 12 connected to the MS-10 TRIG IN jack, see that there is only a sound produced at the 12th step in a sequence. Disconnect after check.
21.	Step (jack)	Set mode to  . Connect MS-10 momentary switch to STEP jack and see that steps advance when you press the MS-10 switch. Set mode back to  and disconnect after check.
22.	Start/Stop (jack)	Connect MS-10 momentary switch to S/S jack,

and see that the MS-10 switch will turn the S/S on and off.  
Disconnect after check.

23. Linear In      Connect MS-10 control wheel  out to  
                    LINEAR IN jack, and see that the clock  
                    speed changes with input voltage. It should  
                    get faster toward +5V. Disconnect after check.
24. x2/V          Connect MS-10  out to x2/V jack, and see  
                    that clock speed changes with input voltage.  
                    Speed increases towards +5V. Disconnect  
                    after check.
25. +2/V          Connect MS-10  out to +2/V jack, and see  
                    that clock speed changes with input voltage.  
                    Speed should decrease toward +5V. Disconnect  
                    after check.
26. Clock          Turning the CLOCK knob all the way counter-  
                    clockwise should slow down the cycle 10sec ~ 40sec.  
                    Turning the knob clockwise should speed up the  
                    clock.
27. Analog      The sum of IN 1 and IN 2 voltages should  
    Mixer          appear in the OUT voltage.  
                    For example: Connect MS-10  out to IN 1;  
                    Connect SQ-10 multiple trigger out to IN 2;  
                    Connect MS-10 CV IN to OUT.

Multiple trigger signal should modulate pitch of note  
when keyboard is played (or momentary switch is pressed)  
on MS-10. Changing IN 1 input voltage (from control wheel)  
will vary entire pitch.

FREQ CV IN

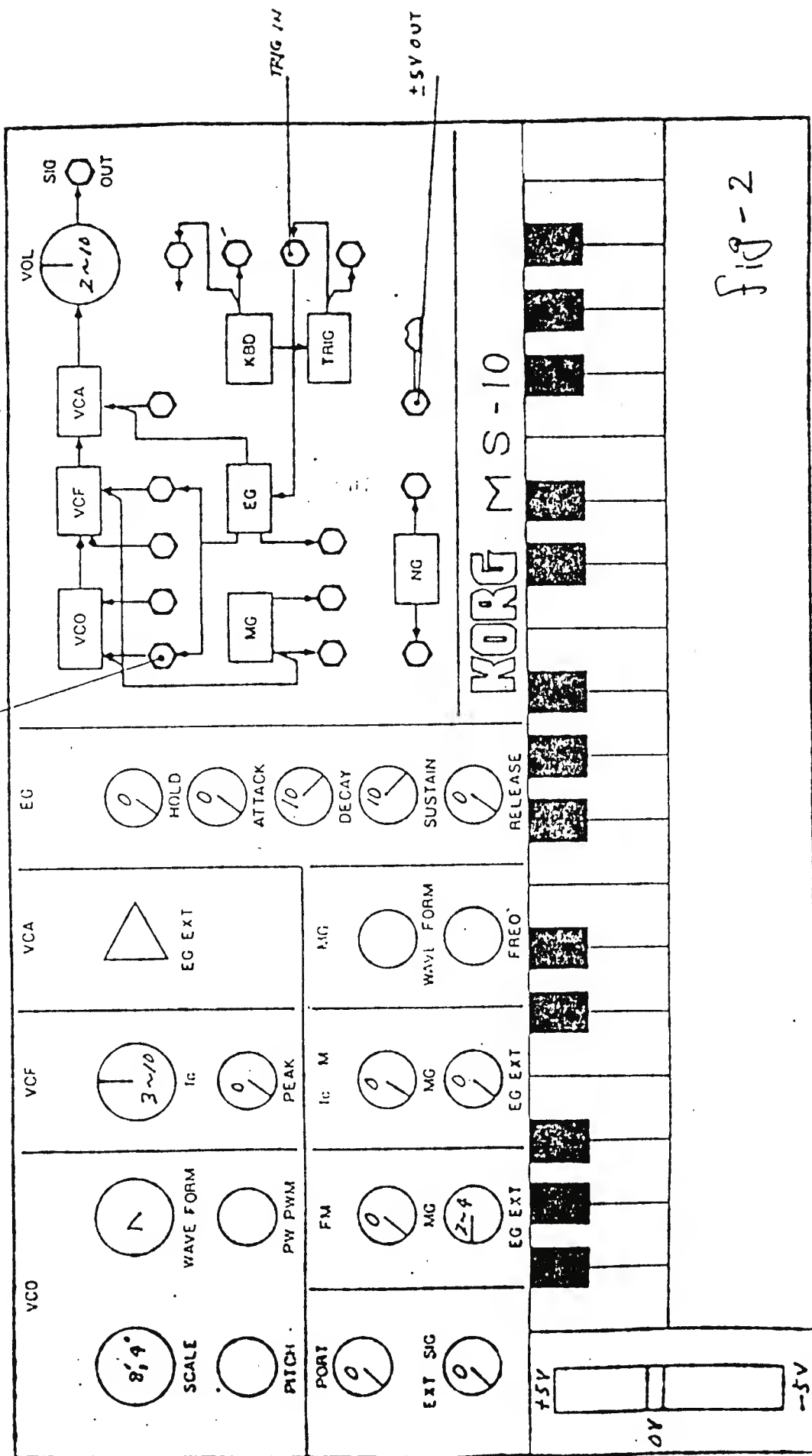


Fig-2



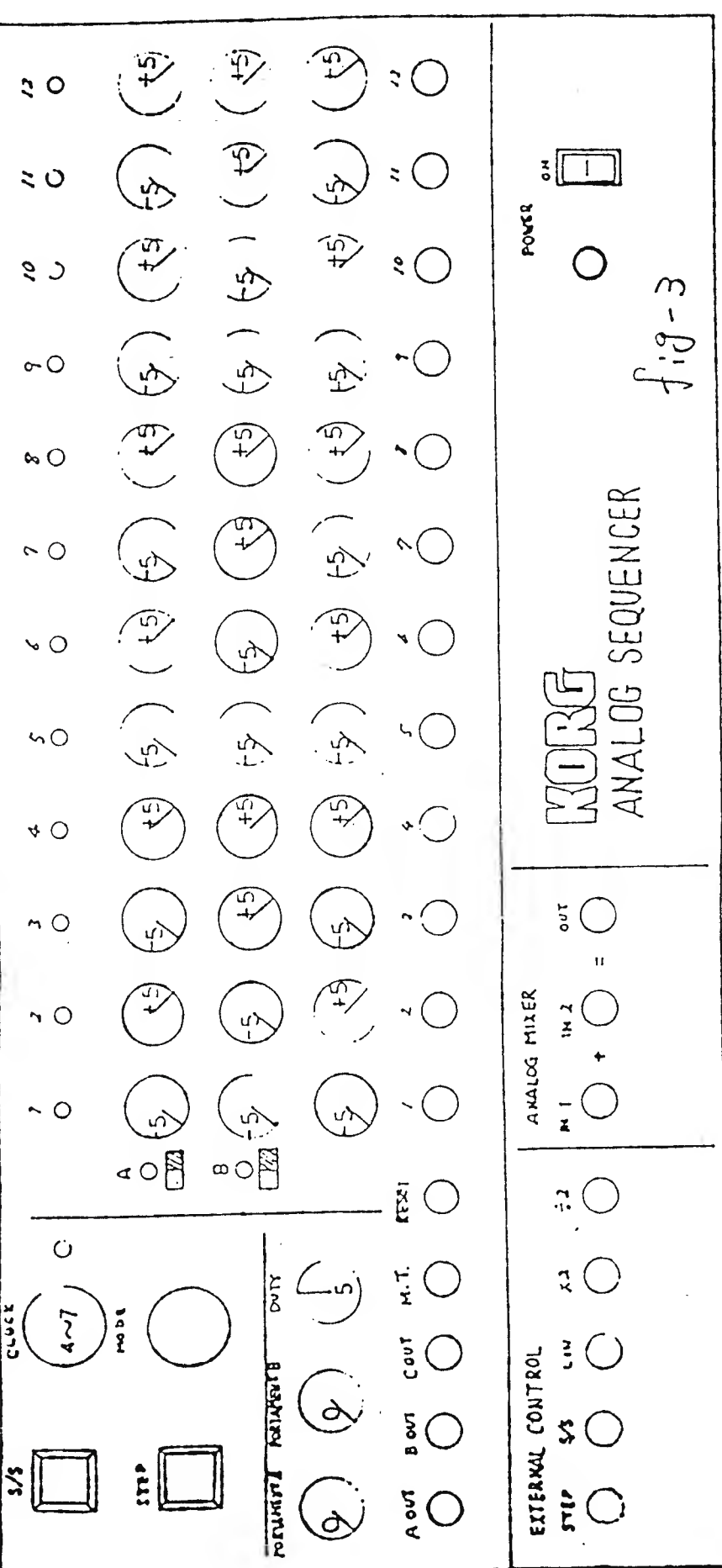
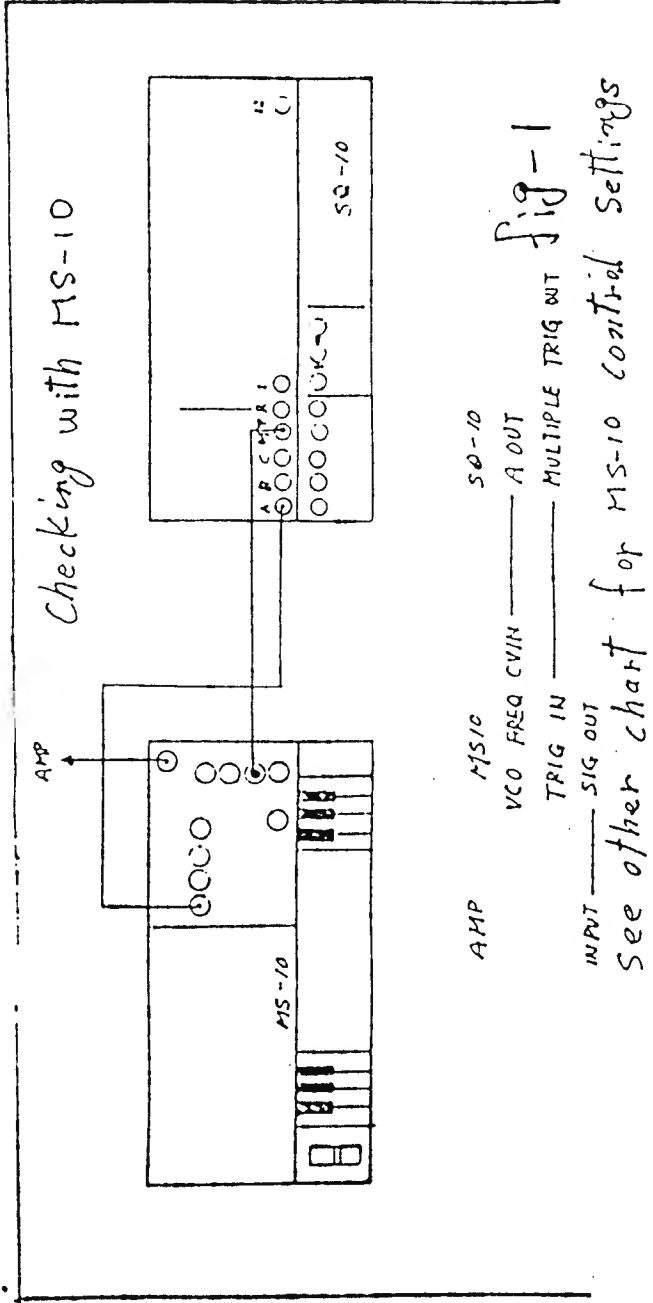
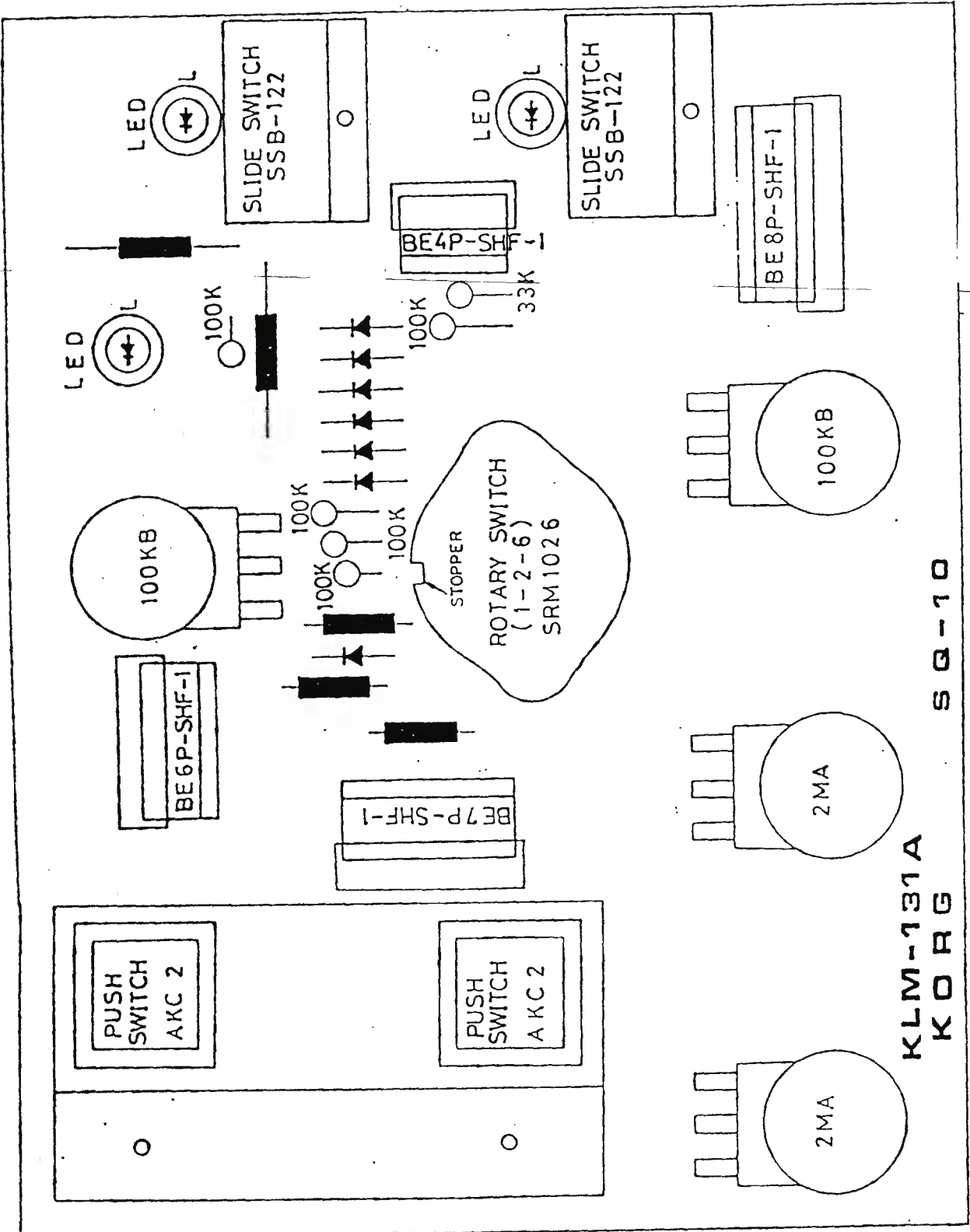


fig-3

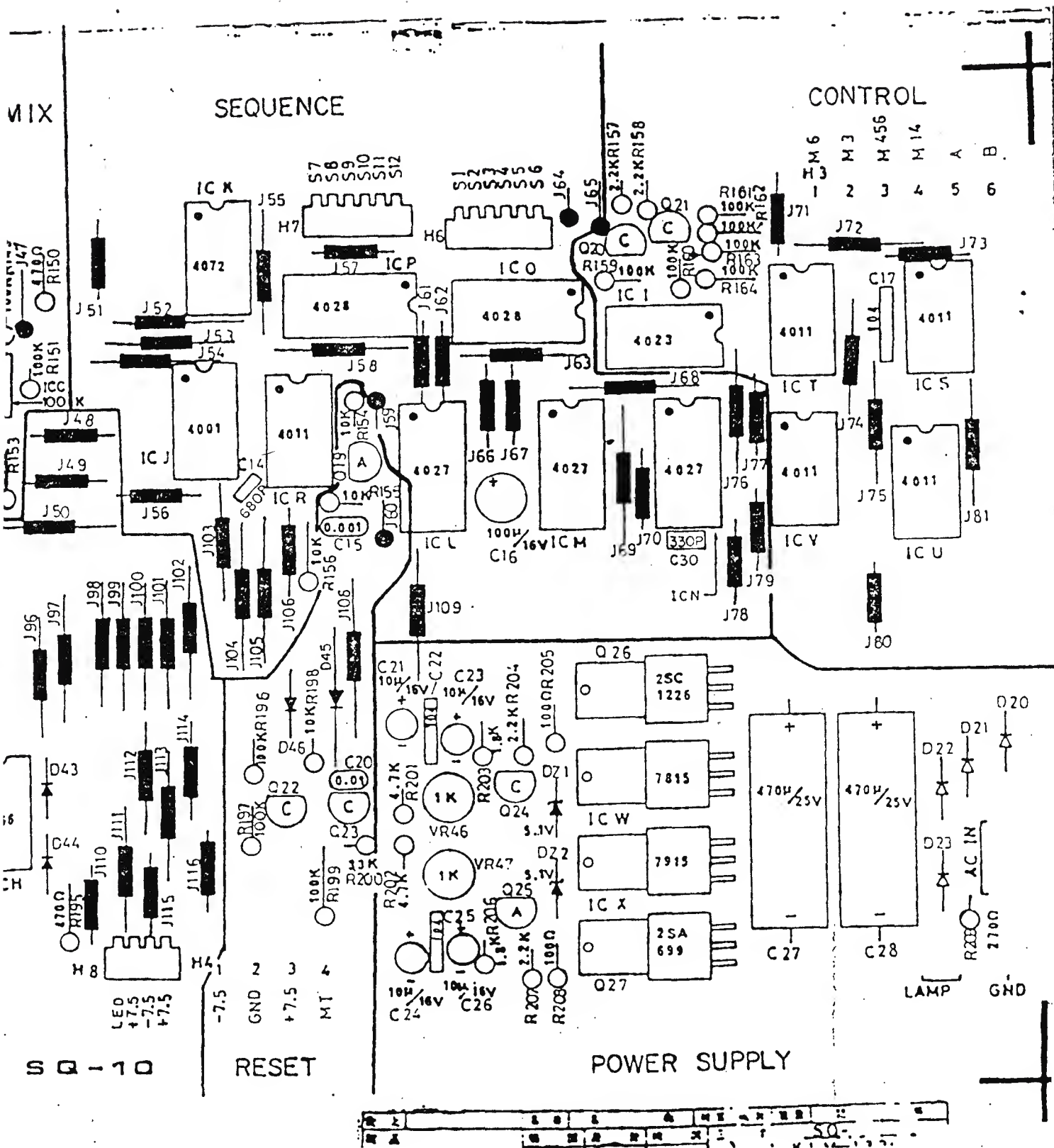


95

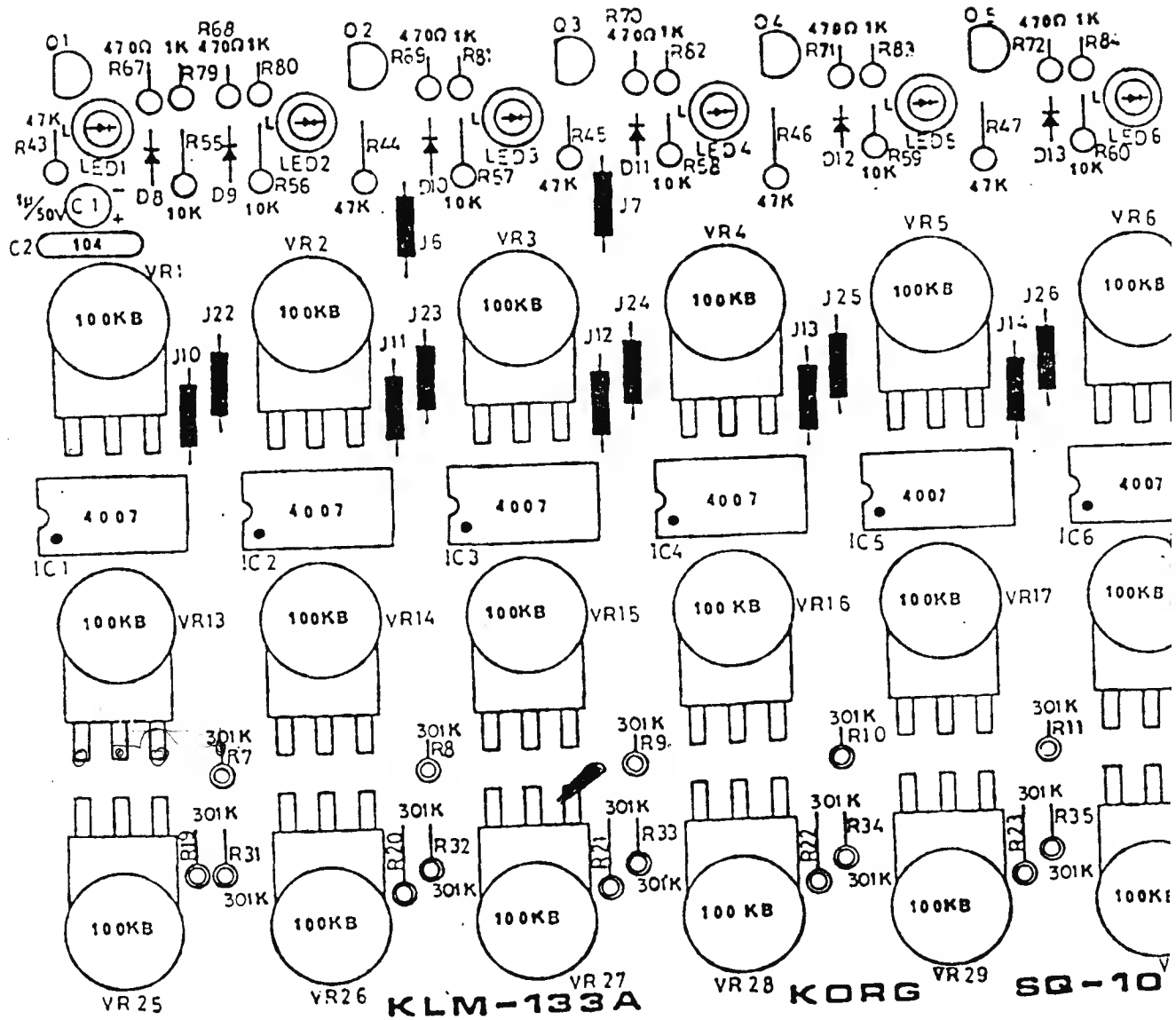


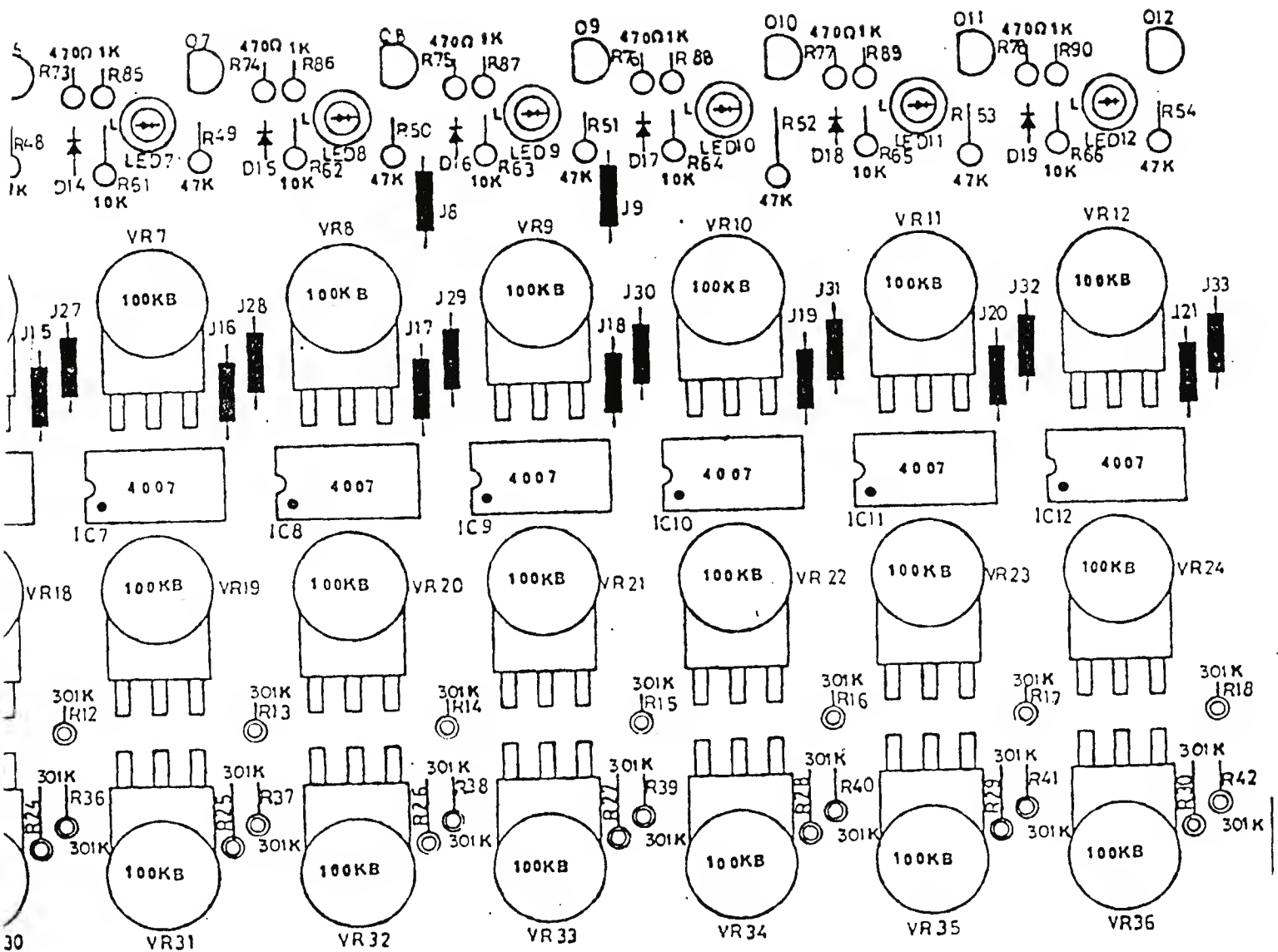
KLM-132C





3010 KLM-133A



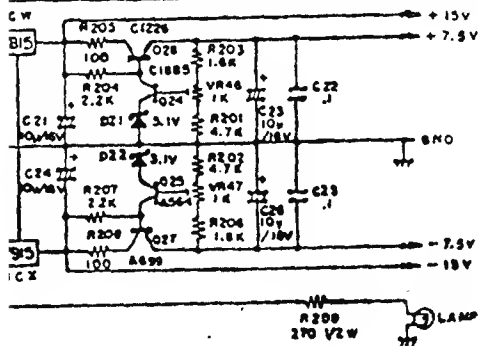


⑤ = 250-16P5

50-10	
KLM-133A	
東京エレクトロニクス社	
京王技研工業株式会社	KOD-F1000A





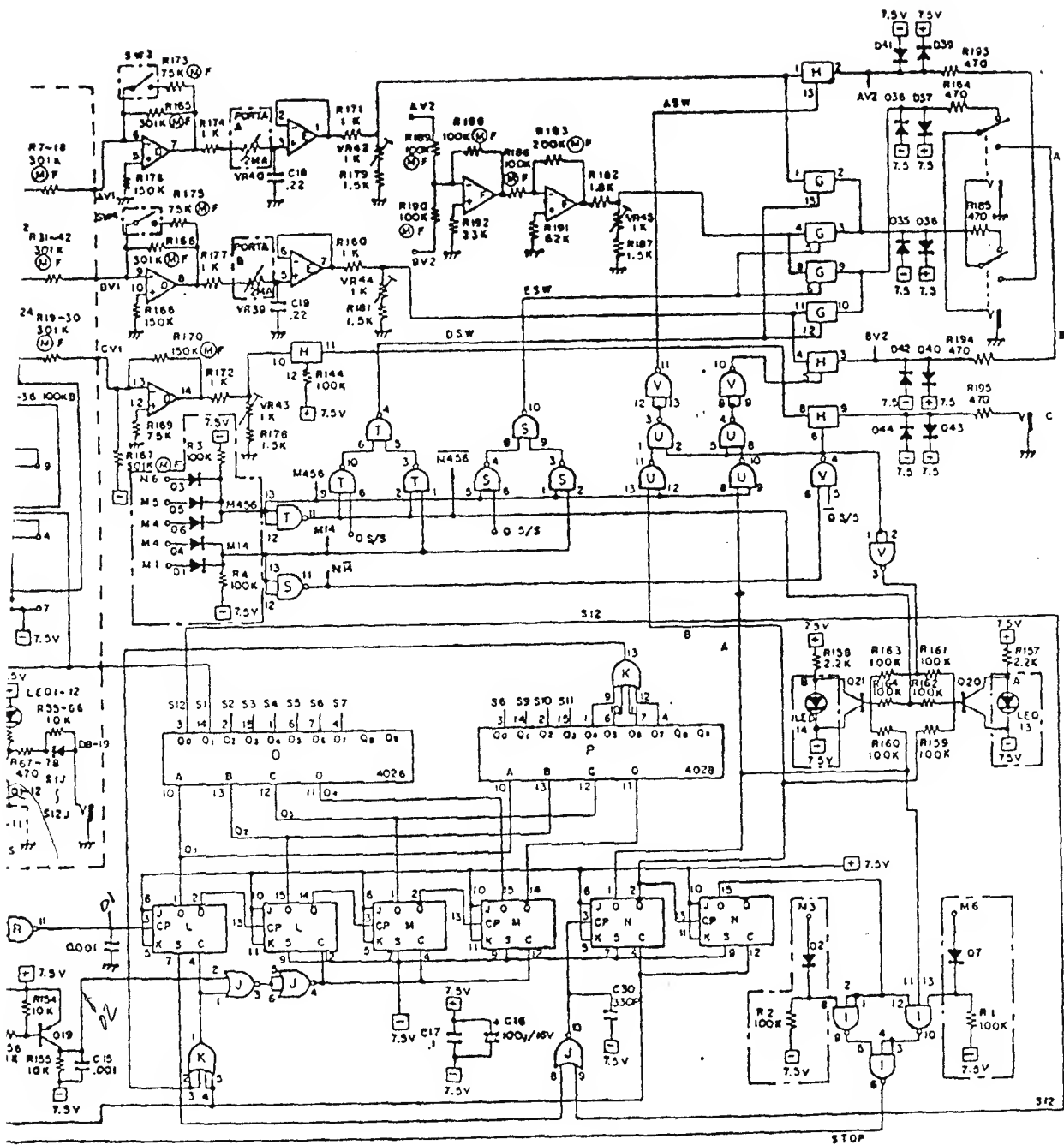


\* 2SA 564 PNP  
\* 2SC 1683 NPN

OP Amp :  $\pm 15V$   
ANALOG SW :  $\pm 7.5V$   
DIGITAL IC :  $\pm 7.5V$

IC CHART		
MA	OP	CHOS
A	324	
B	082	
C	4338	
D	324	
E	082	
F	4338	
G		4061
H		4068
I	4023	
J	4001	
K	4012	
L	4027	
M	4017	
N	4017	
O	4028	
P	4028	
Q	4011	
R	4011	
S	4011	
T	4011	
U	4011	
V	4011	
W	4007	





MI32: MAIN CIRCUIT BOARD  
 MI33: SEQUENCE CIRCUIT BOARD  
 MI31: CONTROL CIRCUIT BOARD

2SA564 PNP OP Amp : 2.5V  
 ANALOG SW : 7.5V  
 2SC1685 NPN DIGITAL IC : 2.5V

D	324	
E	325	
F	459	
G	404	
H	406	
I	402	
J	401	
K	402	
L	407	
M	407	
N	407	
O	408	
P	408	
Q	401	
R	401	
S	401	
T	401	
U	401	
V	401	
W	407	